

# SEQUENCE LISTING

<110> Yunn-Bor Yang  
Chia-Li Wei  
Jyh-Shing Hsu  
Ying-Chieh Tsai

<120> Mutated Penicillin Expandase and Process for Preparing  
7-ADCA Using the Same

<130> 6653-022-999

<140> To Be Assigned

<141> 2004-02-27

<150> 10/105,319

<151> 2002-03-26

<160> 1

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1230

<212> DNA

<213> Streptomyces clavuligerus

<220>

<221> CDS

<222> (232) ... (1164)

<400> 1

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gcggacgcgc tggacgcgct gacgggagag tgatcccccc ggctcgcgga ccgcctcccc      180
cgcgctgttg accaccgggt tcacggatta cgagaggatc agtgagagtt g atg gac      237
                                         Met Asp
                                         1
acg acg gtg ccc acc ttc agc ctg gcc gaa ctc cag cag ggc ctg cac      285
Thr Thr Val Pro Thr Phe Ser Leu Ala Glu Leu Gln Gln Gly Leu His
      5      10      15
cag gac gag ttc cgc agg tgt ctg agg gac aag ggc ctc ttc tat ctg      333
Gln Asp Glu Phe Arg Arg Cys Leu Arg Asp Lys Gly Leu Phe Tyr Leu
      20      25      30
acg gac tgc ggt ctg acc gac acc gag ctg aag tcg gcc aag gac atc      381
Thr Asp Cys Gly Leu Thr Asp Thr Glu Leu Lys Ser Ala Lys Asp Ile
      35      40      45      50
gtc atc gac ttc ttc gag cac ggc agc gag gcg gag aag cgc gcc gtc      429
Val Ile Asp Phe Phe Glu His Gly Ser Glu Ala Glu Lys Arg Ala Val
      55      60      65
acc tcg ccc gtc ccc acc atg cgc cgc ggc ttc acc ggg ctg gag tcg      477
Thr Ser Pro Val Pro Thr Met Arg Arg Gly Phe Thr Gly Leu Glu Ser
      70      75      80
gag agc acc gcc cag atc acc aat acc ggc agc tac tcc gac tac tcg      525
Glu Ser Thr Ala Gln Ile Thr Asn Thr Gly Ser Tyr Ser Asp Tyr Ser
      85      90      95
atg tgc tac tcg atg ggc acc gcg gac aac ctc ttc ccg tcc ggt gac      573
Met Cys Tyr Ser Met Gly Thr Ala Asp Asn Leu Phe Pro Ser Gly Asp
      100      105      110
ttc gag cgg atc tgg acc cag tac ttc gac cgc cag tac acc gcc tcc      621
Phe Glu Arg Ile Trp Thr Gln Tyr Phe Asp Arg Gln Tyr Thr Ala Ser
      115      120      125      130

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cgc gcg gtc gcc cgg gag gtc ctg cgg gcg acc ggg acc gag ccc gac	669
Arg Ala Val Ala Arg Glu Val Leu Arg Ala Thr Gly Thr Glu Pro Asp	
135 140 145	
ggc ggg gtc gag gcc ttc ctc gac tgc gag ccg ctg ctg cgg ttc cgc	717
Gly Gly Val Glu Ala Phe Leu Asp Cys Glu Pro Leu Leu Arg Phe Arg	
150 155 160	
tac ttc ccg cag gtc ccc gag cac cgc agc gcc gag gag cag ccc ctg	765
Tyr Phe Pro Gln Val Pro Glu His Arg Ser Ala Glu Glu Gln Pro Leu	
165 170 175	
cgg atg gcg ccg cac tac gac ctg tgc atg gtc acc ctc atc cag cag	813
Arg Met Ala Pro His Tyr Asp Leu Ser Met Val Thr Leu Ile Gln Gln	
180 185 190	
aca ccc tgc gcc aac ggc ttc gtc agc ctc cag gcc gag gtc ggc ggc	861
Thr Pro Cys Ala Asn Gly Phe Val Ser Leu Gln Ala Glu Val Gly Gly	
195 200 205 210	
gcg ttc acg gac ctg ccc tac cgt ccg gac gcc gtc ctc gtc ttc tgc	909
Ala Phe Thr Asp Leu Pro Tyr Arg Pro Asp Ala Val Leu Val Phe Cys	
215 220 225	
ggc gcc atc gcg acc ctg gtg acc ggc ggc cag gtc aag gcc ccc cgg	957
Gly Ala Ile Ala Thr Leu Val Thr Gly Gly Gln Val Lys Ala Pro Arg	
230 235 240	
cac cat gtc gcg gcc ccc cgc agg gac cag ata gcg ggc agc agc cgc	1005
His His Val Ala Ala Pro Arg Arg Asp Gln Ile Ala Gly Ser Ser Arg	
245 250 255	
acc tcc agt gtg ttc ttc ctc cgt ccc aac gcg gac ttc acc ttc tcc	1053
Thr Ser Ser Val Phe Phe Leu Arg Pro Asn Ala Asp Phe Thr Phe Ser	
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gtc ccg ctg gcg cgc gag tgc ggc ttc gat gtc agc ctg gac ggc gag	1101
Val Pro Leu Ala Arg Glu Cys Gly Phe Asp Val Ser Leu Asp Gly Glu	
275 280 285 290	
acc gcc acg ttc cag gat tgg atc ggg ggc aac tac gtg aac atc cgc	1149
Thr Ala Thr Phe Gln Asp Trp Ile Gly Gly Asn Tyr Val Asn Ile Arg	
295 300 305	
cgc aca tcc aag gca tagagagcac acaccgtcat gggtcacagca gcaatcagtg	1204
Arg Thr Ser Lys Ala	
310	
gtaccgacga gatacgcgcg agggcg	1230